

ABSTRACT

A method is provided that allows a simple and inexpensive apparatus to measure the uniformity of the height-directional positions of spheres or hemispheres such as bump electrodes of a semiconductor device. The degree of focus is calculated from an image of bump electrodes 11a and 11b acquired at a first focusing position F1 using an imaging system. After that, the bump electrodes 11a and 11b and the imaging system is relatively moved closer or farther, and then the degree of focus is calculated from an image acquired at a second focusing position F2. The degrees of focus at these two focusing positions F1 and F2 are compared with each other. As a result, detected are the contour lines of the horizontal cross sections of the bump electrodes 11a and 11b at the height $(F1+F2)/2$ of the position of equal degree of focus indicated by PQ. On the basis of the shapes and/or sizes thereof, the height-directional positions of the bump electrodes 11a and 11b are measured. According to this method, the uniformity of the height-directional positions of the bump electrodes 11a and 11b are also measured.